

Future Challenges Risk

"Revolution in the technology of war increasingly is defined not by mass or size but by mobility and swiftness. Influence is measured in information, safety is gained in stealth, and force is projected on the long arc of precision-guided weapons. This revolution perfectly matches the strength of our country, the skill of our people, and the superiority of our technology. The best way to keep the peace is to redefine war on our terms."

*President George W. Bush
September 1999*

**Drive Innovative
Joint Operations**

**Develop More
Effective
Organizations**

**Define and
Develop
Transformational
Capabilities**

**Define Skills and
Competencies for
the Future**

By definition, transformation is the enduring process of change. It is not about change for its own sake, nor is it about canceling the pursuit of one technology for another. Accordingly, static measures of success can mislead or misinform – today’s “right” solution may as easily be a barrier as a gateway to tomorrow’s innovation.

How then do we know if we are, in fact, “transforming” to meet the future?

The most reliable barometer of transformation in the defense community is to observe how the culture is changing. How and why are things done differently than in the past? How are those changes redefining what we believe we need to accomplish next?

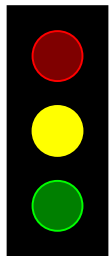
We are working to promote a culture that rewards unconventional thinking – a climate where people have freedom and flexibility to take risks and try new things...one that does not wait for threats to emerge and be "validated," but rather anticipates them before they emerge – and develops and deploys new capabilities quickly, to dissuade and deter those threats.

*Secretary Rumsfeld
February 5, 2003*

Thus, the Department's progress toward transformation is best measured by observing the number and character of activities that are leading the defense community to fundamentally new relationships, and thus to "transformed" capabilities.

The Secretary's performance priority for future challenges risk in FY 2004 are *Enhance Joint Warfighting*, *Transform the Joint Force*, and *Global Engagement*.

DRIVE INNOVATIVE JOINT OPERATIONS



Fashioning joint operating concepts to guide the conduct of joint operations is our leading priority for transformation. Over the past year, the military departments have each proposed their individual models of how they would prefer to fight. We are now seeking to integrate these perspectives into an overarching concept for the employment of the joint force.

Although these new concepts are not yet complete, the budget proposals for each of the military services anticipate the need to be ready to act on new joint warfare concepts as they are adopted.

For example, since 2002, the Army has terminated 24 systems, reduced or restructured another 24, and shifted almost \$14 billion into the development of its Future Combat System.

Over the same time, the Navy will have retired 26 ships that could have otherwise been modernized or had their service lives extended, and instead invested in a new littoral combat ship, a new cruiser, a new destroyer, a new helicopter-deck ship, and a new prepositioning ship – and began designing a next-generation aircraft carrier.

The Air Force will retire 114 fighter and 115 mobility and tanker aircraft, and consolidate operations among its squadrons. Additionally, the Air Force will enhance weapon systems in the inventory and field new systems, such as unmanned aerial vehicles.

Looking towards the future, the Marine Corps is considering hypersonic suborbital assault transport capabilities for projection of strategic capabilities anywhere on the globe within two hours. Capabilities may span the spectrum from material payloads to

Marines on the ground. This Joint concept envisions a family of capabilities of utility not just to Marines, but also to Special Operations Forces and Air Force's National Security Space Missions.

Maintained Balanced and Focused Science and Technology

Science and technology funds are those defense dollars spent on basic research, applied research, and advanced technology development. Often called the "seed corn" of military technology, basic research is the systematic study of fundamental aspects of science without any specific application, such as a weapon system, in mind. Applied research translates promising basic research into solutions for broadly defined military needs by exploring ways to design, develop, or improve prototype devices, materials, or systems. Advanced technology is the last step in the process, demonstrating how a new idea can increase military capabilities – or reduce costs – when applied to different types of military equipment or techniques.

Over the next six years, we intend to increase spending for research and development by 65 percent above the 2002 baseline budget – a total investment of around \$150 billion annually and a 10 percent increase as a percentage of the overall investment budget.

Experiment With New Warfare Concepts

In November 2002, the Chairman of the Joint Chiefs of Staff issued his goals for developing and testing new joint warfare concepts. This January, the Commander of the Joint Forces Command in Norfolk, VA completed the first draft of his 6-year plan to accomplish those goals.

The Joint Experimentation Campaign Plan describes how research into new concepts and operational architectures will be developed and tested, and how training exercises and experiments will be used to evaluate the usefulness of new concepts in each of the following areas:

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| <ul style="list-style-type: none"> • Effects Based Operations • Rapid Decisive Operations • Force Projection • Information Operations | <ul style="list-style-type: none"> • Operational Net Assessment • Joint Interagency Coordination Group • Joint Fires Initiative | <ul style="list-style-type: none"> • Collaborative Information Environment • Information Sharing (Coalition) • Joint Tactical Actions • Joint Urban Operations |
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Although the plan is highly decentralized—relying on many smaller-scale experiments conducted by all players—it tracks the expected manpower and funding to be invested each year, and lists the deliverables (exercises event, concept document).

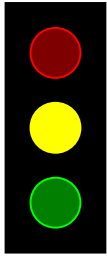
We are exploring concepts developed both inside and outside of the Department—any new idea that could improve how we command and control joint forces across the battle space in cities or jungles, mountains or forests, in the littoral and at sea, and in space. The plan gives special emphasis to events planned during FY 2004 and 2005.

The Joint Experimentation Campaign Plan is just a first step. Our goal is to set in motion a process of *continual transformation*, and a culture that will keep the United States several steps ahead of any potential adversaries. As such, we will review and revise our campaign plan periodically:

	First Release	Update/Revise
Secretary's Guidance	September 2003	Biennially
Joint Experimentation Campaign Plan	December 2003	Biennially
Joint Requirements Oversight Council Review ¹	December 2004	Biennially

¹ The Joint Requirements Oversight Council (JROC) comprises the vice chiefs of staff of each military service, and is chaired by the Vice Chairman of the Joint Chiefs of Staff. The JROC reviews all potential defense acquisition and special interest programs to avoid duplication of new programs with existing programs, and to foster the use of interoperable joint programs.

DEVELOP MORE EFFECTIVE ORGANIZATIONS



As our culture changes, our focus shifts to enabling what we call joint operations—the ability of our land, sea, air, and space forces to be combined under the control of a single combatant commander and used in ways that are most appropriate to achieving the objectives of the campaign that he has laid out.

Accordingly, over the past two years we have modified our command structures dramatically, adding a combatant command for the United States called Northern Command and merging our Space Command with Strategic Command to make use of the new instruments of strategic power. We also have given the Special Operations Command a new lead role in shaping combat concepts and operations, adding almost 2,000 personnel to its ranks.

Strengthen Joint Operations

It is not enough to say we want to fight joint—we have to train joint, too. Accordingly, we are dedicating a substantial amount of funding to enable joint training. Much of this training will be “virtual,” leveraging the most modern modeling and simulation tools. At the same time, the Army, Navy, Marine Corps, and Air Force are all rethinking their own service training to make it friendly to the joint operational environment.

ESTABLISH A STANDING JOINT FORCE HEADQUARTERS

The concept of organizing forces under a joint task force commander has been used to great effect since the Gulf War of 1990. However, each time we respond to a crisis, we must create these joint organizations from scratch, siphoning people and equipment from other commands—and when the emergency is over, these high-functioning units disband.

Two years ago we took steps to create permanent joint headquarters for each of our combatant commands worldwide. These headquarters would be equipped with the most capable command, control, computers, communications, intelligence, and surveillance assets we have available. The permanent staff would be trained to a common standard and be expert about how joint forces function in

battle. Accordingly, our model concept for a Standing Joint Force Headquarters (SJFHQ) will be ready for testing by the end of FY 2004, with the goal of fielding the model globally to regional commands during FY 2005.

Establish baseline	Test prototype during Millennium Challenge 2002 (a major joint force exercise)	2002
Issue guidance	Publish "Joint Force Command and Control Concept to Guide Standing Joint Force Headquarters Development by 2005"	JAN 2003
Establish oversight	Update Chairman, Joint Chiefs of Staff Instruction (CJCSI) 3170.C, "Joint Capabilities Integration and Development System," draft charter	FY 2003
Develop staffing options	Complete SJFHQ Organization Study	FY 2003
	Conduct Pinnacle Impact 03 and related experiments to finalize Doctrine Organization Training Materiel Leadership Personnel and Facility (DOTMLPF)	
Validate & verify options	Continue experiments for each regional combatant commander	FY 2003
	U.S. Forces Pacific: Terminal Fury	FY 2005
	U.S. Forces Central Command: Internal Look	FY 2005

ESTABLISH A GLOBAL JOINT PRESENCE POLICY

To better manage how we use air, land, sea, and space assets across service lines—and to improve coordination in the readiness and tempo of operations of all U.S. forces—we will establish steady-state levels of air, land, and naval presence in critical regions around the world. By matching our stationing and deployment policies to specific operational tasks, we will improve the capability and flexibility of U.S. forward-stationed forces and better control force management risks.

Our inaugural Global Joint Presence Policy was issued in the summer of 2003.

Enhance Homeland Defense and Consequence Management

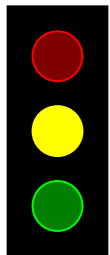
In January 2002, the Vice Chairman of the Joint Chiefs of Staff, working with the vice chiefs of the military services and the Assistant Commandant of the Marine Corps, chartered a major

study of the Department's ability to perform homeland defense missions.

Using the consolidated list of all major military tasks as a baseline, the team identified 151 operational tasks related to homeland defense missions that would contribute to homeland security, and 32 associated deficiencies considered serious enough to warrant immediate remedial action.

Drawing on the results of this effort, the Joint Staff and the Commander, U.S. Northern Command, in cooperation with other federal agencies including the Department of Homeland Security, the Federal Bureau of Investigation, and the Transportation Security Administration, are refining an operational concept and architecture for identifying and evaluating homeland defense missions.

DEFINE AND DEVELOP TRANSFORMATIONAL CAPABILITIES



The dramatic transformation of America's strategic environment demands an equally dramatic transformation in how we prepare the force. Our emphasis must shift from deliberate planning to time-sensitive planning, from permanent organizations to *dynamic* organizations, and from hierarchical institutions to modular force packages. Accordingly, how we train must transform.

Today's trainers must prepare the force to learn, improvise, and adapt rather than to merely execute fixed doctrine to standards. We must define and then develop dynamic capabilities-based training across the full spectrum of service, joint, interagency, intergovernmental, and multinational operations.

The long-term goals of training transformation are to:

- Improve readiness and align military capabilities with the needs of the combatant commanders.
- Develop individuals and organizations that think intuitively as joint entities.

- Develop individuals and organizations that instinctively adapt their response to a constantly changing threat.
- Achieve adaptation by unifying diverse means.

Achieving these objectives begins with changing the way people think and the way organizations operate. We must create, impart, and apply knowledge, individually and collectively, via learning, education, and training, respectively. The new strategic environment requires orchestration of this wider diversity of means and a broader, more inclusive definition of “jointness.”

Accordingly, the training transformation implementation plan (www.f2net.org), signed by the Deputy Secretary on June 10, 2003, provides a road map to developing and fielding dynamic, capabilities-based training to Active and Reserve components; federal, state, and local agencies; and our international security partners, including nongovernmental organizations. This roadmap is framed around three key initiatives: the Joint Knowledge Development and Distribution Capability, the Joint National Training Capability, and the Joint Assessment and Enabling Capability.

Joint Knowledge Development and Distribution Capability

If we are to structure and employ forces in ways that will meet our strategic objectives, our forces must become multi-skilled and multidimensional—they must intuitively “think” joint. This means each civilian and military member of the force must understand the principles of joint operational art and “see” the battlespace through the lens of a common operating picture. This will allow them to apply knowledge collected from across the force and transform it into combat power that is able to surprise and overcome an aggressor.

The Joint Knowledge Development and Distribution Capability (JKDDC) initiative is intended to leverage state-of-the-art distribution processes to access knowledge—in the form of education, learning, training, and human expertise—via a net-centric, knowledge-based, joint architecture that is interoperable with the joint training system. Thus, education and training

resources will be available anytime, anywhere. It also will allow on-scene commanders, first responders, and others to seek real-time advice from subject-matter experts in the areas of language, culture, science, strategy, and planning working at military war colleges, universities, or other resource sites across the globe.

Major JKDDC Milestones	
2003	Establish a joint management office Stand up an Advisory Group Align ongoing initiatives for joint distributed learning
2004	Launch an initial web-based curriculum for joint military leader development
2005	Provide an initial web-based delivery of joint individual education and training resources
2009	Transition initial joint education and training prototype efforts to international coalition partners, international organizations, and nongovernmental organizations

Joint National Training Capability

Building on the training transformation of the 1970s, the Joint National Training Capability (JNTC) will provide an environment for realistic joint exercises against aggressive, free-playing opposing forces, with credible feedback. This integrating environment will provide:

- *Improved Horizontal Training* that builds on existing service interoperability training
- *Improved Vertical Training* that links component and joint command and staff planning and execution
- *Integration Exercises* that enhance existing joint exercises to address joint interoperability training in a joint context
- *Functional Training* that provides a dedicated joint training environment for functional warfighting and complex joint tasks

The JNTC will enable active and reserve component forces from all services, located at widely dispersed training sites around the globe, to train together on a 24-hour basis, while linked to real-world command and control systems.

JNTC can be used to train forces against a general threat, to conduct mission rehearsal against a specific threat, or to experiment with new doctrine, tactics, techniques, procedures, joint operational concepts, and equipment. By providing the means to represent large tactical forces via simulation, JNTC can present a range of realistic training to battle staffs from joint headquarters, component headquarters, and service tactical headquarters. Over time, JNTC will evolve to encompass a larger training audience, including coalition partners and federal, state, local, and nongovernmental agencies.

Major JNTC Milestones	
2004	Initial Operating Capability
2005	<p>Provide joint context with command, control, communications, computer, intelligence, surveillance, and reconnaissance to major service training events and to joint command and staff training events</p> <p>Create an initial Web-based delivery capability for operational planning and mission rehearsal</p> <p>Create an initial Web-based delivery capability for operational planning and mission rehearsal</p> <p>Use the joint training system to link lessons learned from military operations, joint training, experimentation, and testing to the development and assessment of joint operational capabilities</p>
2007	<p>Assess all joint training tasks biannually in a joint context in selected joint exercises</p> <p>Conduct specifically-designed major transformation events with complex tasks in a joint context to assess systematically the joint operational capabilities</p> <p>Conduct a multinational JNTC event</p> <p>Demonstrate a deployable JNTC, and mission rehearsal capabilities</p>
2009	<p>Train joint forces to conduct operations in key transformation mission areas</p> <p>Conduct and analyze joint and interoperability training with lessons learned leading to improvements across the spectrum of doctrine, organization, training, materiel, leadership, personnel, and facilities</p> <p>Establish fully-trained SJFHQ with functional components</p>

Joint Assessment and Enabling Capability

The Joint Assessment and Enabling Capability (JAEC) initiative will help us systematically assess training transformation plans, programs, and investments across the Department, allowing us to continuously monitor how joint force readiness is improving. These

assessments will guide the rapid spiral development of the JKDDC and the JNTC initiatives.

Major JAEC Milestones	
2004	Develop a performance assessment architecture Create an initial web-based joint lessons learned network for defense users
2005	Develop standard training transformation metrics Produce an initial block assessment report Track joint education, training, and experience of all defense personnel
2006	Link joint training to the Defense Readiness Reporting System network
2007	Ensure that all DoD forces are trained prior to and during deployment Ensure that all joint training and exercises in support of combatant commander requirements are measured and reported

Joint Force Experimentation

The Commander, U.S. Joint Forces Command is in charge of integrating the objectives of each transformation plan into a series of deliberate exercises, experiments, and demonstration. The goal is to discover future concepts for joint warfighting by bringing together the best ideas of the individual services and the skill and innovation of industry.

He oversees more than 800 military and government workers, contractors and consultants who constitute a massive "transformation laboratory" testing new concepts through rigorous experimentation, educating joint leaders, training joint forces, and making recommendations on how the Army, Navy, Air Force and Marines can better integrate their warfighting capabilities tools and assessment mechanisms to drive continual improvement.

Last summer, the Joint Forces Command completed its first major experimental effort—Millennium Challenge 2002, nicknamed "MC02." MC02 focused on the military's ability to conduct rapid, decisive operations against a determined adversary. Players came from all the military services, most combatant commands, and many federal agencies. Future experiments will draw on lessons learned during that event, as well smaller, objective experiments.

In addition, we are monitoring the plans to ensure we build on lessons already learned from operations in Somalia, Haiti, Bosnia, Kosovo, and elsewhere earlier this decade, such as increasing the role of naval intercept operations, resolving communications differences between fleets and ground and aviation elements, and improving the interoperability of special operations forces.

Establish and Monitor Service Transformation Plans

Last year, each of the military services drafted “roadmaps” laying out their respective approaches to acquiring the kinds of capabilities described as leading the way toward a transformed force in the 2001 Quadrennial Defense Review. As such, they establish a baseline against which to measure future progress. The plans will be revised periodically to reflect how legacy systems and concepts have been enhanced, or as fundamentally new capabilities are fielded and validated via experimentation. We will also ask the services to revise their plans to restructure activities as the Department’s goals are refined—and we will issue an annual transformation planning guidance to guide those updates.

We will use the following criteria to assess whether the systems cited in each roadmap are truly “transformational”:

DECISION LOGIC
<p>Is the system interoperable? If it is not on the “net,” then it is not contributing, not benefiting, and not part of the information-age.</p> <p>Can it be readily made a networked participant and are funding plans in place to do so?</p> <p>Does it broaden the capabilities base? Does this contribute to rebalancing capabilities with regard to “breadth vs. depth?”</p> <p>Is the system performing at decreasing rate of return on investment? Is it the “ultimate” of an existing capability or platform and are there alternative ways of creating this capability with potential increasing rates of return on investment?</p> <p>Are new technologies available at lower investment, both for acquisition and life cycle costs?</p> <p>Is it less expensive to effectively counter the system than it is to sustain the system? Is the system on the wrong side of the cost technology curve?</p> <p>Does it re-establish a leadership position and lock out competition in areas where the barriers to competitive entry are falling? (sea, space and cyberspace)</p> <p>Does it support operational concepts that dramatically increase the speed of deployment, employment and sustainment</p> <p>Does it support an operational concept that itself is undergoing devolution?</p> <p>Does it leverage U.S. asymmetric advantages of C2, deployment capability, logistics and medical?</p> <p>Does it create a U.S. asymmetric advantage?</p> <p>Does the acquisition strategy dramatically reduce capabilities cycle time?</p> <p>Will it profoundly alter the competition more than the legacy forces?</p>

Monitor the Status of Defense Technology Objectives

Our science and technology investments are focused and guided through a series of defense technology objectives, each focused on (1) a specific technological advancement that will be developed or demonstrated, (2) the anticipated date the technology will be available, (3) the specific benefits that should result from the technological advance, and (4) the funding required (and funding sources) to achieve the new capability. These objectives also distinguish specific milestones to be reached and approaches to be used, quantitative metrics that will indicate progress, and customers who will benefit when the new technology is eventually fielded.

Every two years, independent peer review panels composed of approximately six experts in relevant technical fields assess the defense technology objectives for each program. At least two-thirds of the team members are from academia, private industry, and other U.S. government agencies. The reviews are conducted openly; observation by stakeholders is welcomed. The teams assess progress against three factors—technical approach, finding, and technical progress—and rate the programs as:

Green	Progressing satisfactorily toward goals
Yellow	Generally progressing satisfactorily, but some aspects of the program are proceeding more slowly than expected
Red	Doubtful that any of the goals will be attained.

The benefits of these ratings are many. Not only do they reflect the opinions of independent experts, but they are also accepted and endorsed by stakeholders. These reviews result, and will continue to result in near real-time adjustments being made to program plans and budgets based on the ratings awarded.

Performance Goal—Status of Defense Technology Objectives						
Benchmark	FY 1999 Actual	FY 2000 Actual	FY 2001 Actual	FY 2002 Target/Actual	FY 2003 Actual	FY 2004 Projection
Percentage of DTOs progressing satisfactorily ^a	94	98	96	≥70/98	96	≥ 70
Total number of DTOs evaluated in biennial reviews	159	168	180	163	163	
Total number of DTOs	347	327	397	374	404	
Note: DTO = Defense Technology Objective.						
^a Includes both “green” and “yellow” (satisfactory) DTO ratings.						

Exploit the U.S. Information Advantage

Our preeminent global intelligence capability is the foundation of U.S. military power. It enables our leaders to decide how and when to apply military force, and provide a capability to assure allies and friends of our purpose and resolve, dissuade adversaries from threatening ambitions, deter aggression and coercion, and decisively defeat an adversary on our terms. However, to maintain and improve our ability to meet future challenges, we are seeking to transform intelligence by:

- Achieving the capability to know something of intelligence value about *everything*—on demand and on our terms—by providing the fine-grained details of specific issues to support timely decisions. This is a daunting challenge, but it will be absolutely necessary if intelligence is to support future military missions.
- Developing a strategic competency for warning that allows us to deal with a full spectrum of potential threats, while honing our operational skills to always expect the unexpected: To prepare for surprise and deal rapidly and assuredly with unforeseen developments, we must continuously develop information on ever-changing threats and actors—on the ground, in the air, space, or cyberspace.
- Employing our forces to ensure intelligence enables the swift defeat of the enemy. We must be prepared to act quickly, secretly, and effectively. We will need to anticipate needs of the warfighter and provide predictive intelligence that stays ahead of the battle.

ACHIEVE PREDICTIVE INTELLIGENCE CAPABILITIES AND RESPONSIVE, INTEGRATED INTELLIGENCE SYSTEMS

We are committed to developing capabilities that provide "exquisite" intelligence—to know our adversaries' intentions and secrets without *their* knowing that *we* know. This means closing the gap in time and culture between intelligence and military operations. To do so is to enable a seamless transition from the collection of information to its employment to assessments of the effects of that employment.

With these objectives in mind, we have established initiatives to integrate intelligence operations and information content across defense intelligence components; establish a framework operating an integrated global intelligence, surveillance, and reconnaissance system; establish interoperability standards for future intelligence systems; and conduct experiment and field demonstrations to evaluate how improving horizontal integration will affect mission performance.

A critical step on this path is shifting from a collection-focused intelligence system to a user-driven system. This will fundamentally change the way in which we plan and operate. It will facilitate combined intelligence operations and will exploit the advantages of information technology to provide knowledge to our customers when they need it. To that end, we are researching capabilities that let users pull relevant data from any place on the intelligence network to where it is needed most, regardless of origin or format. These capabilities will not replace current intelligence, data analysis, or analysts; rather, they will capitalize on already collected information.

MAKE INFORMATION AVAILABLE ON A NETWORK THAT PEOPLE DEPEND ON AND TRUST

Our ability to build a worldwide information net, populate it with information needed by military commanders, and then use the network for command and control is limited by the bandwidths available on the global information grid. Bandwidths are often compared to pipes through which information flows as it is

channeled to the user. The size and number of pipes available determines how much information can be processed at any one time.

Several ongoing research efforts are trying to find ways to “squeeze” information so it flows more easily: metadata tagging, securing access to the spectrums used most often for military operations, exploring technology and regulations associated with the electromagnetic environment to ensure interference-free access.

Finally, we must make sure our information networks, both current and future, are secure from attack. As a first step, we are refining our information assurance strategy. It will become the baseline for identifying, funding, and tracking the achievement of specific actions underway to protect our information infrastructure.

POPULATE THE NETWORK WITH NEW, DYNAMIC SOURCES OF INFORMATION TO DEFEAT THE ENEMY

Our military commanders use information of all kinds, not only intelligence data, to “see” the battle space, and thus outwit and overcome our adversaries. The net-centric enterprise architecture we are building will allow commanders to engage the network at any time from anywhere, without needing cumbersome base support. Data will be posted and ready for download and analysis as soon as it arrives, anywhere on the network.

Our network will let users “fuse” data from many sources, in real time, into an integrated picture of the operational environment. These analyses can then be posted back to the net, where data producers, commanders, and other users working from sites dispersed throughout the world to synchronize battlefield assets can retrieve them.

The network will be tailorable, allowing users to subscribe or individually request specific information—a military version of the Internet search engine. This will thin the volume of information being pushed through the net, since users will receive only data pertinent to their operational needs or interests. More important, relevant data will automatically be updated, so users will have immediate, in-progress information about ongoing intelligence, operations, or combat support analyses.

MEASURING INTELLIGENCE VALUE TO THE CUSTOMER

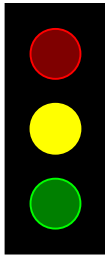
To strengthen the overall management of intelligence capabilities, we are building measures of the value of our human, signals, and imagery systems. These metrics will evaluate how well intelligence is enabling military planners and operators to perform their tasks and will identify shortfalls and establish benchmarks for intelligence performance levels that will be needed to deal with future tasks. We have recently completed evaluations of air and space systems and are extending these measures to encompass broader areas of collection and analysis. Our long-term goal is to measure the performance of intelligence operations as an integrated enterprise and to understand how that performance will change as new capabilities come online. We will also appraise our progress toward improving the number, quality, and responsiveness of intelligence products, as well as developing more useful ways to post the results on networks.

DENY ENEMY ADVANTAGES AND EXPLOIT WEAKNESSES

We must not only protect our sources and use of information—we must also target the enemy's information assets and destroy or disrupt his ability to use them against our forces. Accordingly, we are working to define the tools and possible weapons associated with information operations. During FY 2004, we will develop an investment strategy for optimizing these capabilities, and metrics for tracking our progress toward achieving those improvements.

Aggressive counterintelligence is also part of information operations. In April 2002, we established a Defense Counterintelligence Field Activity to oversee all defense counterintelligence efforts, with the goal of providing a "common operational counterintelligence picture" to monitor defense-wide threats and activities that could pose harm to our people or institutions. This new field activity will lead efforts during FY 2004 and 2005 to define strategic outcomes and associated performance measures for use in monitoring the progress and performance of this important initiative.

DEFINE SKILLS AND COMPETENCIES FOR THE FUTURE



" Throughout history warfare has assumed the characteristics of its age and the technology of its age. Today we see this trend continuing as we move from industrial age warfare with its emphasis on mass to information age warfare which highlights the power of networked distributed forces and shared situational awareness...Within this wider context of military transformation, network-centric warfare is one of the key concepts for thinking about how we will operate in the future."

*Deputy Secretary Paul Wolfowitz
July 2001*

"[A key roadblock to progress is a]...Lack of understanding of key aspects of human and organizational behaviors..."

*DoD Report to Congress on Network Centric Warfare
July 2001*

Establish Human Skill Sets for a Networked Environment

Behavior of individuals, systems, and organizations is a significant and nontrivial component of net-centric operations.

Accordingly, we have launched a two-phase research initiative to define a conceptual framework for the development of skills, knowledge, and competencies for a networked environment.

Phase I (completed DEC 2002)	This basic research initiative advanced underlying theory of Information Age Warfare and highlighted the key relationships between the Physical, Information, and Cognitive Domains for Network Centric Operations (NCO).
Phase II (ongoing)	The objective of phase II is to provide insights that can be applied to begin to identify the knowledge, skills, and competencies required for organizations with mature information age capabilities. It will further mature NCO Theory and develop a wide range of case studies of military operations conducted with varying degrees of information sharing. From these it is expected that a series of behavioral trends and key competencies will be identified, which can ultimately be incorporated within the Universal Joint Task List and the Joint Training Master Plan.

Define and Monitor Key National Capabilities

The 2001 Quadrennial Defense Review lists the six critical operational goals to guide the Department's transformation efforts. In addition to the overall management plans described above, each military service and defense agency must outline what it is doing now to support these goals, and how it intends to pursue improvements or innovations over the next several years. These plans, called "capability roadmaps," will be compared to emerging results from the experiments conducted by U.S. Forces Command and to the actual performance of units as reported through the Joint Training Information Management System.

Operational Goals for Transformation

1. Defend the U.S. homeland and bases of operation overseas.
2. Project and sustain forces in distant theaters.
3. Deny enemies sanctuary.
4. Improve our space capabilities and maintain unhindered access to space.
5. Harness our advantages in information technology to link up different kinds of U.S. forces so they can fight jointly.
6. Protect U.S. information networks from attack and disable the information networks of our adversaries.